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### REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed September 20, 2005. Through this response, claims 14-18 have been added. Reconsideration and allowance of the application and pending claims 1-18 are respectfully requested.

#### **I. Allowable Subject Matter**

Applicants appreciate the Examiner's indication that claims 5 and 10 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

In that it is believed that every rejection has been overcome, it is respectfully submitted that each of the claims that remains in the case is presently in condition for allowance.

#### **II. Claim Rejections - 35 U.S.C. § 103(a)**

##### **A. Rejection of Claims**

Claims 1-4, 6-9 and 11-13 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Tsuji et al.* ("*Tsuji*," U.S. Pat. No. 5,664,035) in view of *de Cesare et al.* ("*de Cesare*," U.S. Pat. No. 5,682,037) and further in view of *Gray* ("*Gray*," U.S. Pat. No. 5,266,155). Claims 1-4, 6-9 and 11-13 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Krause* ("*Krause*," U.S. Pat. No. 5,448,077) in view of *de Cesare* and further in view of *Gray*. Applicants respectfully traverse these rejections.

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### B. Discussion of the Rejection

As has been acknowledged by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a proper case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Accordingly, to make a proper case for obviousness, there must be a prior art teaching or established knowledge that would suggest to a person having ordinary skill in the pertinent art to fill the voids apparent in the applied reference. It is respectfully asserted that no such case has been made in the outstanding Office Action.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teaching. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must be found in the prior art, and not based on applicant's disclosure.

In the present case, Applicants respectfully submit that a *prima facie* case of obviousness has not been established.

### Claims 1-4, 6-9 and 11-13

Applicants respectfully assert that the proposed combination is improper. It has been well established that teachings of references can be combined only if there is some suggestion or incentive to do so. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, there must be a

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teaching in the relevant art which would suggest to a person having ordinary skill in that art the desirability of combining the art references to teach or disclose the claim limitations.

Applicants respectfully assert that there are very significant and noteworthy differences among the references that clearly makes their combination more a result of what appears to be hindsight reasoning than any motivation gleaned from their respective teachings. For instance, *Gray* teaches that the emitter is an "electron emitter," (col. 6, lines 1-5), not a photon emitter as disclosed in Applicants' disclosure or as described in *Tsuji* (light emitting diode, col. 5, lines 18-20). Further, the emitter disclosed in *Gray* is not centrally located as disclosed in *Tsuji* (FIG. 2b) and Applicants' disclosure. In *Gray*, the emitter emits from the side edge of the structure (as shown in Figure 3 of *Gray*, where the edge of the "thin film emitter" section is where the exposed field emitter tip exists), and not from the surface.

The Office Action further notes that "de Cesare teaches a detector is a thin film detector (see abstract section), and Gray teaches an emitter is a thin film emitter (Fig. 3, col. 5, lines 7-9)." The teachings of *de Cesare* emphasize a deposited detector (see abstract, "deposition technique"). "Deposited" indicates that the material is actually formulated on a surface upon which the material is "deposited," in contrast to stacked structures as described in Applicants' disclosure. It is generally understood that deposited thin film photodetectors are inferior in ultimate performance (e.g., responsivity, speed) for applications which are not sensor-oriented but instead which are communication-based. Thus, it is understood by those having ordinary skill in the art that a deposited thin film photodetector would form an inferior product for optical links (communications environment), which demands high

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responsivity, high speed operation. Such a proposed combination would thus likely be undesirable, and thus lacking in motivation.

Further, deposited thin film materials are described as amorphous materials (see Summary and claim 1, for example), which are understood as having multiple grain boundaries that cause a high recombination velocity at the grain boundaries. Thus, the responsivity and the speed of amorphous photodetectors are not applicable for communications applications, which is another deterrent to combining the references.

Finally, with regard to a motivation to combine *Tsuji* with *de Cesare* and/or *Gray*, there is not always a motivation to combine with the end result being thin film photodetectors, because in some instances, a thick substrate is preferred since it acts as a support for packaging such as bump bonding or wire bonding, which are the two most common types of commercial packaging technologies for emitters and photodetectors today.

In summary, it is Applicants' position that a *prima facie* for obviousness has not been made against Applicants' claims. Therefore, it is respectfully submitted that each of these claims is patentable over the art of record and that the rejection of these claims should be withdrawn.

#### Claims 1-4, 6-9 and 11-13

Applicants respectfully assert that the proposed combination is improper. Applicants respectfully assert that there are very significant and noteworthy differences among the references that clearly makes their combination more a result of what appears to be hindsight reasoning than any motivation gleaned from their respective teachings. For instance, *Gray* teaches that the emitter is an "electron emitter," (col. 6, lines 1-5), not a photon emitter as disclosed in Applicants' disclosure or as described in *Krause* (LED, col.

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2, lines 44-50). Further, the emitter disclosed in *Gray* is not centrally located as disclosed in *Krause* (FIGs. 6-8) and Applicants' disclosure. In *Gray*, the emitter emits from the side edge of the structure (as shown in Figure 3 of *Gray*, where the edge of the "thin film emitter" section is where the exposed field emitter tip exists), and not from the surface.

Further, with regard to *de Cesare*, *de Cesare* discloses a deposited structure, in contrast to the stacked arrangement described in Applicants' disclosure.

Finally, with regard to a motivation to combine *Krause* with *de Cesare* and/or *Gray*, there is not always a motivation to combine with the end result being thin film photodetectors, because in some instances, a thick substrate is preferred since it acts as a support for packaging such as bump bonding or wire bonding, which are the two most common types of commercial packaging technologies for emitters and photodetectors today.

In summary, it is Applicants' position that a *prima facie* for obviousness has not been made against Applicants' claims. Therefore, it is respectfully submitted that each of these claims is patentable over the art of record and that the rejection of these claims should be withdrawn.

### III. New Claims

As identified above, claims 14-18 have been added into the application through this Response. Applicants respectfully submit that these new claims describe an embodiment of an invention novel and unobvious in view of the prior art of record and, therefore, respectfully request that these claims be held to be allowable.

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**CONCLUSION**

Applicant respectfully submits that Applicants' pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



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